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10/594,315

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Lawrence C. Kennedy

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EXAMINER

DODD, RYAN P

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/594,315 | Applicant(s) KENNEDY ET AL. | |
| | Examiner RYAN DODD | Art Unit 3655 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 49-54 and 62-65 is/are pending in the application.
- 4a) Of the above claim(s) 62-65 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 49-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/27/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is the first office action on the merits for application no. 10594315, which is a national stage/371 of PCT/US05/11345, filed 1 April 2005, which claims the benefit of provisional application 60/558,140, filed 1 April 2004. Claims 62-65 are withdrawn from consideration. Claims 1-9, 49-54, and 62-65 are currently pending.

Election/Restrictions

Applicant's election of the invention of Group I, claims 1-9, 49-54, in the reply filed on 27 April 2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Information Disclosure Statement

The Information Disclosure Statement filed 27 September 26, 2006 has been received and is being considered by the Examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 3655

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1- 9, 53 and 54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "W-V shaped profile" in lines 6-7. Claim 2 recites the limitation "W-V shaped cross-section". These limitations are indefinite because it is uncertain whether the grooved portion has a "W" profile, a "V" profile, or some kind of combination of both. It is noted that the portion in question in the top half of figure 1 forms a "V" and an upside-down "W", or two upside-down "V's". In the bottom half of Fig. 1 the portion forms a "W" or two "V's", or two upside down "V's".

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 1 and 2 recites

Art Unit: 3655

the broad recitation "V", and the claim also recites "W", which is essentially two "V's" which is the narrower statement of the range/limitation.

Claim 53 recites the limitation "rolled portion" in line three. There is insufficient antecedent basis for this limitation in the claim.

Claim 54 recites the limitation "roll formed portion" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-2, 4-5, 6, 49-50, 51-52, and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent Maji 5178582 (henceforth Maji '582).

Maji '582 discloses, referring to Fig. 5 a viscous fluid clutch for use in a vehicle comprising:

a rotor (cylinder 5, is rotated, see column 1, line 24) having a rotor hub (side plate 7) driven by an input shaft (4) and a rotor surface having an end connected to an outer periphery of the rotor hub, the rotor surface including: a first portion; a second portion; and a grooved portion disposed between the first and second portions and having a W-V shaped profile (see Fig. 5 and figure below);

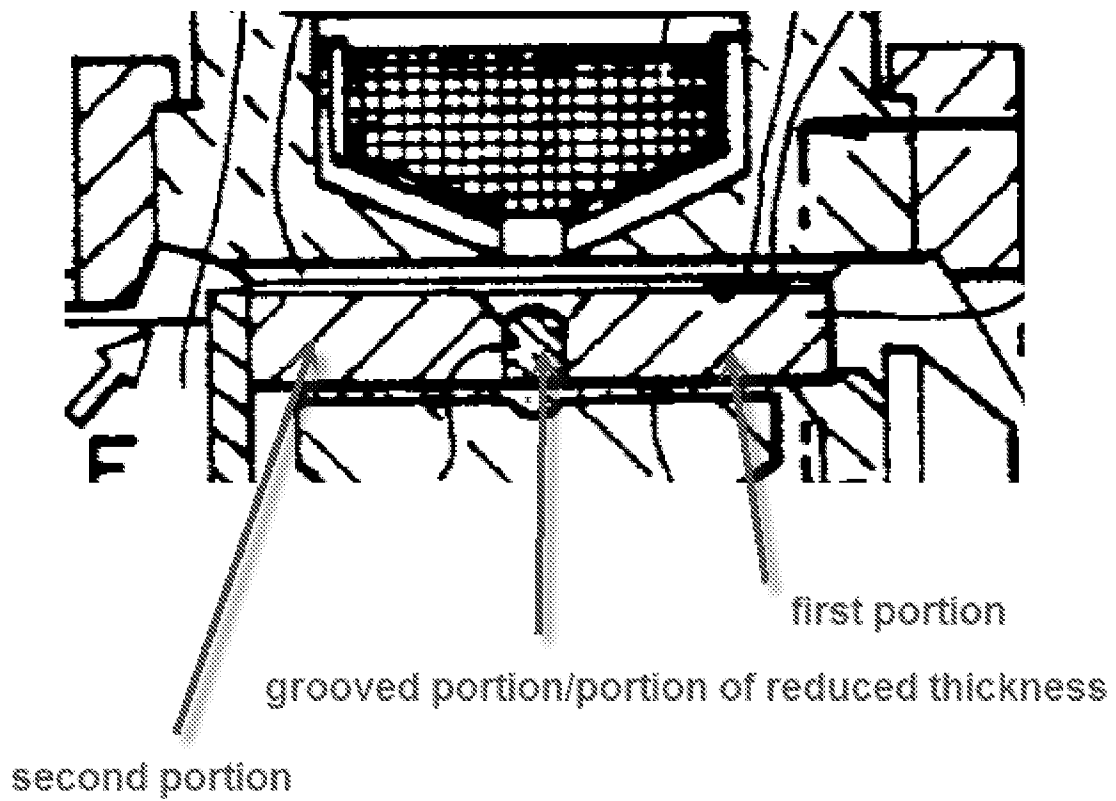
Art Unit: 3655

wherein the first and second portions of the rotor each have a thickness sufficiently greater than a thickness of the grooved portion such that a magnetic flux path in the fluid clutch will have a substantial portion of a magnetic field flow around the grooved portion as compared to a portion of the magnetic field flow that flows through the grooved portion.

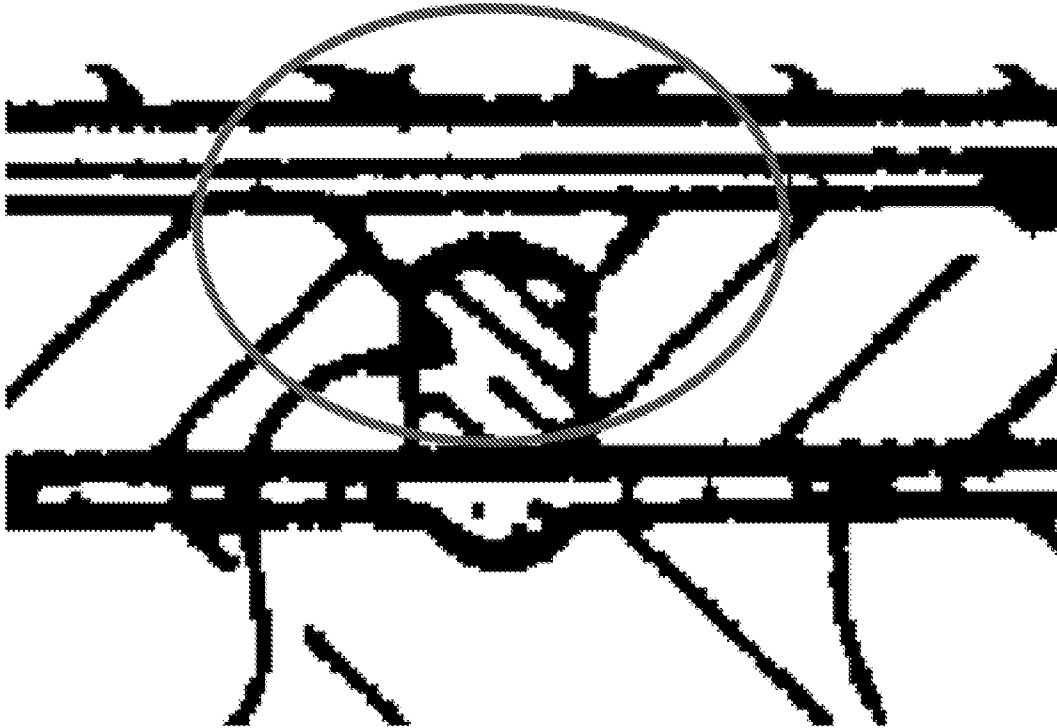
Because Maji '582 contains the same basic structure of the present application, and in addition to the first and second portions having a thickness greater than a thickness of the grooved portion, it is reasonable to assume that a magnetic field would be affected in the same manner by the clutch of Maji '582.

Although Maji '582 discloses that its working fluid is a powder, powder is viscous and fits the definition common definition of fluid because it may flow. In addition the clutch of Maji '582 is fully capable of being used somewhere in a vehicle.

Art Unit: 3655



Art Unit: 3655

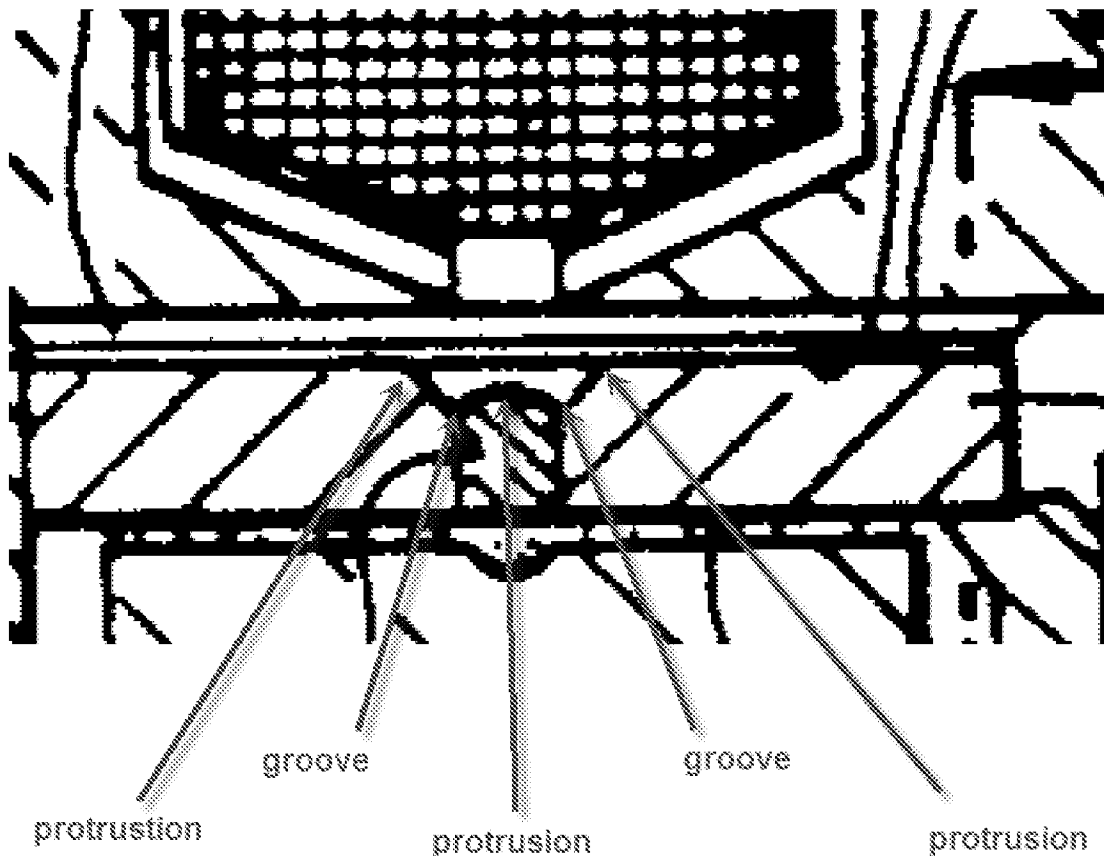


As to claims 2, 4-5, Maji '582 discloses a magnetorheological fluid clutch, comprising:

- an input shaft (4);
- a coil assembly (8) for generating a magnetic field;
- a housing comprising a stator (rotor 20); and
- a rotor (cylinder 5, is rotated, see column 1, line 24) disposed in the housing;
wherein the rotor includes a radially extending hub (7) driven by the input shaft
and an annular rotor ring connected to the hub; and

Art Unit: 3655

- wherein the rotor ring includes a first portion, a second portion, and a portion of reduced thickness (see Fig. 5 and figure above) disposed between the first and second portions to prevent a shunt in the magnetic field, and
- wherein the portion of reduced thickness has a W-V shaped cross-section (see Fig. 5 and figure above).
- wherein the portion of reduced thickness is formed to include grooves and protrusions (see figure below).
- wherein the grooves and protrusions form a W-shape.



As to claim 6, in accordance to MPEP 2113, the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight. Please note that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product, i.e. the portion of reduced thickness, does not depend on its method of production, i.e. formed without cutting. ***In re Thorpe, 227 USPQ 964, 966 (Federal Circuit 1985).***

As to claims 49 and 54, Maji '582 discloses the fluid clutch and its elements but does not disclose a "roll-formed portion". However, in accordance to MPEP 2113, the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight. Please note that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product, i.e. the portion of reduced thickness, does not depend on its method of production, i.e. formed without cutting. ***In re Thorpe, 227 USPQ 964, 966 (Federal Circuit 1985).***

As to claim 50 and 52, Maji '582 discloses the claimed elements (see above analysis), as well as a thinned portion having a saw tooth shaped profile (albeit a blunted sawtooth).

As to claim 51, Maji '582 discloses a W-W shaped profile because it shows a "W" on the bottom half of the cross section and an "W" on the top half of the cross section.

Claim 49 is alternatively rejected under 35 U.S.C. 102(b) as being anticipated by cited art of record US Patent Moser et al. 6102177 (henceforth Moser '177). Moser '177 discloses the fluid clutch of claim 49 but does not disclose that its portion is "roll formed". However, in accordance to MPEP 2113, the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight. Please note that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product, i.e. the portion of reduced thickness, does not depend on its method of production, i.e. formed without cutting. *In re Thorpe*, 227 USPQ 964, 966 (Federal Circuit 1985).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maji '582 alone.

Maji '582 discloses the magnetorheological fluid clutch of claim 2 but **does not disclose** wherein the thickness of the first portion and the thickness of the second portion are at least seven times greater than the thickness of the portion of reduced thickness. However, It would have been obvious to one having ordinary skill in the art at the time the invention was made to reduce the thickness of the portion of reduced thickness to a very small amount, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maji '582 alone. Maji '582 discloses the magnetorheological fluid clutch of claim 2, but does not specify what type of metal its rotor ring is comprised of. However, it would have been obvious to one having ordinary skill in the art to form the rotor ring of either a ferrous or non-ferrous material. One skilled in the art would recognize the effects of using ferrous metals so close to a magnet on the rotating device. Thus, choosing the type of metal with which to form would be merely a matter of choice of design.

Claims 1-9, 49-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moser '177 or cited art of record Smith et. al. 6585092 (henceforth Smith '092), in view of Maji '582.

Moser '177 discloses a fluid clutch and fan drive assembly very similar to that of the present application. Its portion of reduced thickness is very thin, but is not formed in the shape of a "W" or "V". Likewise, Smith '092 discloses a fluid clutch very similar to that of the present application. Its portion of reduced thickness looks to be a recess, but is not formed in the shape of a "W" or "V". However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to reduce the thickness of a portion of the rotor, as is known from Moser '177 or Smith '092, and form it in the shape of a "W" or "V", or a combination of both, as is known from Maji '582, in order to solve the same problem addressed in Smith '092 and Moser '177 by "shunting" a magnetic field.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patents Boddy 7690487, and Ogawa 5803219, and US Publication Stretch 20030111312, all disclose various V-shaped profiles used in magnetorheological clutches. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN DODD whose telephone number is (571)270-1161. The examiner can normally be reached on Monday thru Friday, 9:00A-6:30P, with every other Friday off.

Art Unit: 3655

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571)272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ryan Dodd/

/David D. Le/
Primary Examiner, Art Unit 3655
06/20/2010